

SMART SPECIALISATION AND RESILIENCE: HOW FUTURE-PROOF ARE EUROPEAN REGIONS?

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Abstract

The European Union member states face a new increase of inequality. Thereby, decreasing regional inequality among its regions is one of the central political aims of the European Union and is addressed in almost all European development strategies. It seems that the results of the strategies in terms of cohesion are ambiguous and certain targets have been missed. More dramatically, the COVID-19 pandemic hit the European countries differently. It is to be assumed that the disparities among European regions tend to increase again, not only between the different directions, but also between core and peripheral regions within countries. The article at hand aims to contribute to the ongoing discussion by showing that not only recent development trends indicate a dysfunctional convergence process but also the economic specialisation can become a significant disadvantage for certain regions considering current global megatrends that might lead to a conservation of existing disparity patterns. The article therefore argues that European Structural Policy needs to recognise the shortcomings of the past and calls for a regional policy that focuses on endogenous growth

potential in regions rather than financial transfer alone. Smart Specialisation could be an instrument to develop and push such endogenous growth potential.

Key words European Cohesion, Regional Convergence, Innovation, Resilience, Smart Specialisation

JEL O3, O31, O52, R1, R11

1. Introduction

The European unification is an economic success story. With less than one-tenth of the world's population, the EU accounts for about one-third of the global GDP and the living standards are among the highest in the world (Ridao-Cano and Bodewig, 2019). European regions have experienced an impressive process of convergence which is closely linked to the European Union. Particularly the Eastern enlargement saw the integration of countries with significant income disparities in comparison with the “old” EU member states. The “new” members appeared to have entered a process of continuous convergence and recovery after an enormous economic recession following the transformation into a market economy (Andor, 2019). This process was interrupted with the financial crisis in 2008/09 which marked a turning point and brought a decade of catching-up to an abrupt end. Not only were countries hit differently by the crisis, to the disfavour of less-developed European regions. Moreover, the economic recovery saw much higher growth rates in the core regions of the EU. In the aftermath of the crisis, we are observing a new increase of inequality between countries, regions, and households (Tuffs et al., 2020). It is stated that “the convergence machine is no longer working for everyone” (Ridao-Cano and Bodewig, 2019, p.11).

This is even more worrying as the European Union considers oneself to be more than just an economic zone. Instead, it is an official target to grow into an ever-closer union, both politically and economically. Decreasing regional inequality among its regions and member states is one of the central targets of European Structural Policy and was reflected more or less prominently in all previous development strategies. This applies to the Lisbon strategy adopted in 2000 that should have pushed the EU to be the smartest and most competitive region in the world, the Europe 2020 strategy launched in 2010 focusing on smart, sustainable, and inclusive growth, as well as the new programming period which entered into force in July 2021 (Kruse and Wedemeier, 2018; European Commission, 2021a). Thereby, the results of the previous strategies in terms of cohesion are ambiguous and certain targets have been missed (Veugelers and Mrak, 2009; Lafuente et al., 2020; Aiginger, 2021).

Recently, the situation changed again when the COVID-19 pandemic hit the world economy. Again, European countries were hit differently while particularly tourism-dependent regions in Southern Europe were adversely affected by travel restrictions (Wolf et al., 2021; Dauderstädt, 2021).

It is to be assumed that disparity among European regions tends to re-increase, not only between North and South or West and Eastern Europe but also between core and peripheral regions within countries.

The article at hand aims to contribute to the ongoing discussion by showing that not only recent development trends indicate a dysfunctional convergence process but also the economic specialisation can become a significant disadvantage for certain regions considering current global trends that might lead to a conservation of existing disparity patterns. The article argues that European Structural Policy needs to recognise the shortcomings of the past and calls for a regional policy that focuses on endogenous growth potential in regions rather than financial transfer alone. A sustainable reduction of inequality among European regions can thereby be understood as an instrument to address the rising phenomenon of nationalism and EU scepticism (Aiginger, 2021).

2. Inequality among European Regions

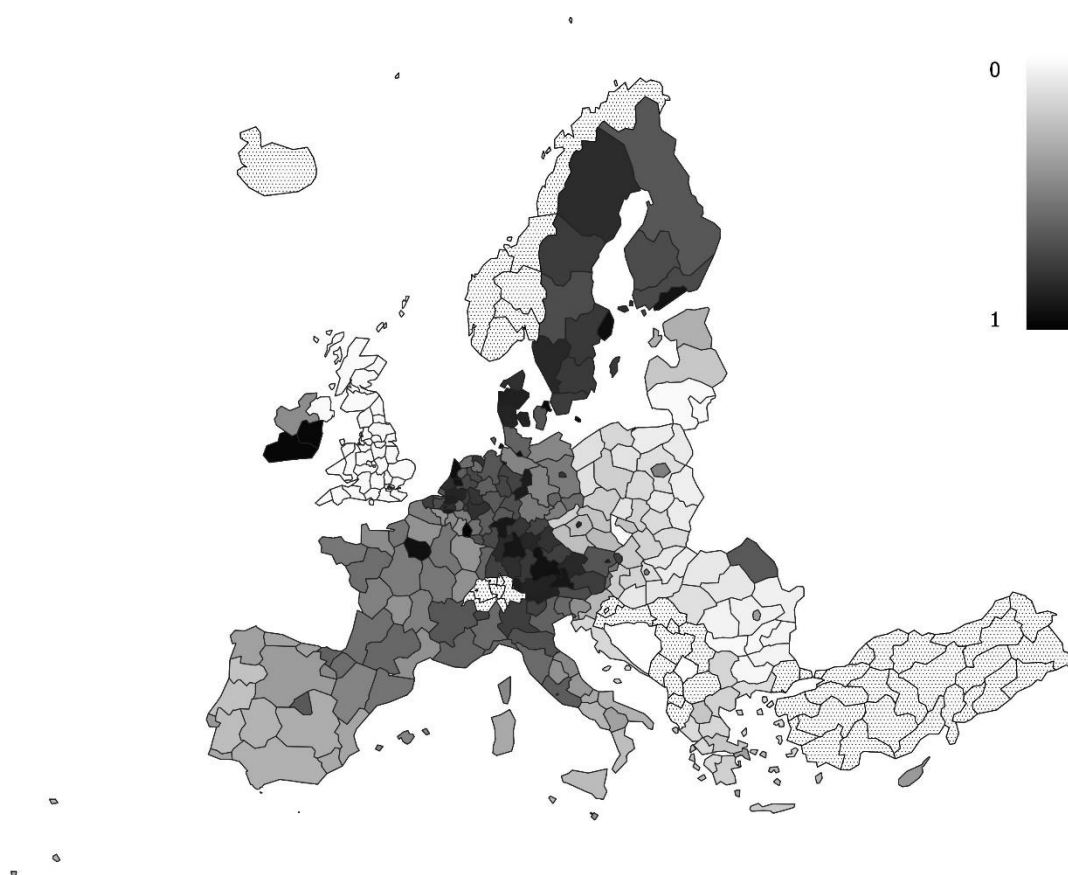
The European Union has undergone several rounds of enlargement since its establishment in 1957 (European Commission, 2019). It has been a regular pattern that new member states were mostly characterised by lower income levels than the existing member countries which put the reduction of these disparities and pursuing a policy of cohesion high on the European agenda (Dauderstädt, 2021). Cohesion shall thereby be achieved by continuous catching-up processes to the benefit of new member states towards the European average. The justification was not only motivated by altruistic reasons. Instead, social, and economic convergence is considered a crucial factor to ensure a functioning Union, its competitive position, resilience to shocks and a positive EU identification of citizens (Lafuente et al., 2020; Dabrowski et al., 2020).

Despite former enlargement rounds being characterised by the inclusion of countries with income disparities, the 2004 and 2007 Eastern enlargements were different. These enlargements saw the integration of Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia (2004). The accession of the Mediterranean countries Cyprus and Malta is also covered by this Eastern enlargement. The eastward expansion was the largest expansion in the history of the EU and was followed by Bulgaria and Romania as well as Croatia joining the EU in 2007 and 2013. This period of enlargement was particularly significant in terms of GDP and population relation. This is because the accession countries were still characterised by a 15-year transition towards a market economy and building of constitutional states after the collapse of the socialist economies in Eastern Europe (Round, 2009). It is therefore of epoch-making importance because it is under the sign of the return to Europe. The first years after joining the EU saw a certain level of convergence between Western and Eastern Europe before the convergence process was impaired in the aftermath of the

financial crisis 2008/09. In this context it is to be noted that the Eastern enlargements brought more rather than less welfare to the “old” member states: The mobility of highly qualified young employees from Eastern to Western countries has particularly benefited the economies and social security systems of Western Europe while the Eastern countries suffered from brain-drain and, in its consequences, among others, a limited innovative capability (Andor, 2019).

What can be observed statistically is a still persistent significant level of income or GDP disparity between “old” and “new” EU member states. The pattern of divergent regions is highlighted in Figure 1 which shows the GDP per capita in European NUTS2 regions. The figure shows that the capital regions of the new member states are, to a certain extent, exceptions from the general trend and present above-average GDP levels. This indicates the development of an “inner periphery within the EU” (Andor, 2019, p. 20) which can also be observed in some of the old member states, for instance in France of the Northern part of Italy (Gräbner et al., 2020).

Figure 1. GDP per capita in European NUTS2 regions, 2018

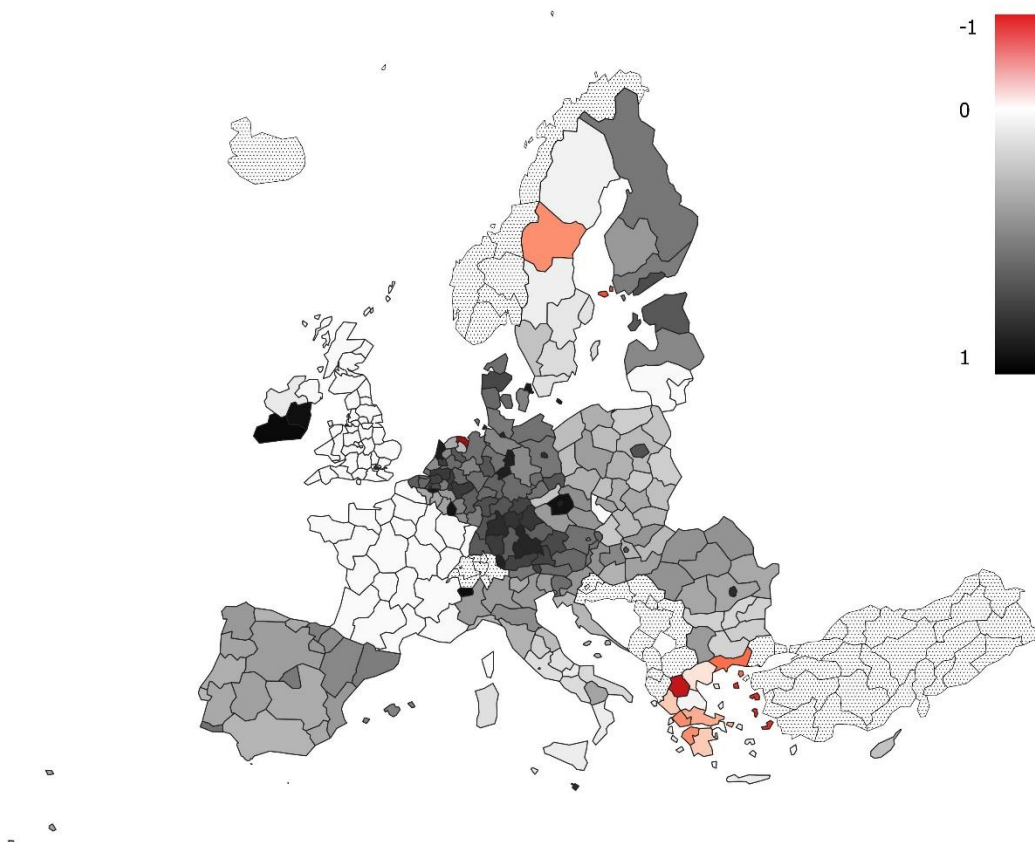


Source: Eurostat (2021a)

Although GDP shows a correlation with income, basic services and even happiness, GDP growth rates and other economic indicators as unemployment rates cannot paint a full picture of European cohesion. Instead, also social indicators need to be recognised in order to understand convergence patterns among Europe (Lafuente et al., 2020). A look at social indicators reveals that, despite high growth rates in certain Eastern European regions, gaps in health conditions, life expectancy, social exclusion, or population decline have not been bridged (Andor, 2019). However, the analysis at hand confines itself with an economic view on convergence which shows comparable patterns as other perspectives on European convergence. While the years prior to the financial crisis 2008/09 were characterised by declining income disparities, high growth rates have been emerged in Central Europe while Eastern Europe kept up but at a significantly lower speed. It is particularly notable that countries in Southern Europe, especially Greece, appear to be falling behind. Although the data is limited to 2018, this pattern is consolidated by the COVID-19 pandemic which hit the tourism-dependent countries in Southern Europe particularly hard. Moreover, less indebted member states introduced stronger fiscal support and therefore tended to suffer from weaker recessions in 2020 (Dauderstädt, 2021).

Figure 2 complements Figure 1 with a trend perspective by showing the development of GDP per capita since 2013. Despite several gaps in the data (for instance for France or the UK) it becomes obvious that a core-periphery pattern is manifesting. The asymmetries in economic performance and catching-up point towards a “club convergence” that does not benefit all member states equally and indicates the idea of a multi-speed Europe (Lafuente et al., 2020).

Figure 2. GDP per capita development 2013-2018



Source: Eurostat (2021a)

3. How resilient are European regions to current trends?

The cohesion process in Europe is not only shaped by previous development but also by continuous megatrends as well as upcoming market and technology trends. One example for a megatrend would be the ongoing structural change towards a service economy that is shaped by knowledge-intensive sectors and an increasing integration of markets (Kruse and Wedemeier, 2018). In this context, part of the economic disparity of the past can be explained by the economic structure in Eastern Europe which was strongly shaped by traditional industries that underwent a shift to Asia. The catching-up of Asian countries goes hand in hand with a diminishing global significance of European regions which then had to deal with a process of structural transformation (Andor, 2019). While literature indicates a strong relationship between economic performance on the one hand and research and development (R&D) on the other hand, an R&D-driven economy is the basis for the regions' competitive advantage. The industrial foundation is fundamentally linked to it, associated with industry-related services and knowledge-intensive services (Veugelers and Cincera, 2015). Therefore, it is alarming that R&D spending targets are not achieved in several European countries

and also not for the EU, particularly in comparison to the United States (Kruse and Wedemeier, 2018; Aiginger, 2021).

Against this background, it becomes interesting to assess how the different European regions are prepared in light of upcoming trends. As the past is characterised by different phases of increasing disparity and catching-up, we developed a methodology to quantify a development outlook for the economic structure in European NUTS2 regions. The methodology builds upon a collection of recent megatrends, market and technological trends, and priorities that are likely to shape European regions. A shortened overview of trends is provided in Table 1. This trend review has been synchronised with NACE Rev. 2 sectors (from 2008 onwards) to identify how the different trends affect the economic sectors whereby a positive relation of the priority and the NACE sector was quantified with 1, a negative relation with -1 and a neutral relationship with 0. On basis of this qualitative assessment, each NACE sector received a summed quantitative value that indicates a negative development outlook if the final value is below 0, a neutral development outlook if the number equals 0 and a positive development outlook of varying strength if the number is above 0 (Mesloh et al., 2021).

Table 1. Examples of megatrends, market and technology trends in Europe

Megatrend	Market and technological trends
Demographic Change	Assisted Living Decreasing population
Sustainability	Bio economy Cheap renewable energy Low carbon economy Material resource efficiency
Digitalisation	Ubiquitous Expert Systems Emotional intelligence online The electrosphere of sensors Quantum technology International confrontation Aerospace

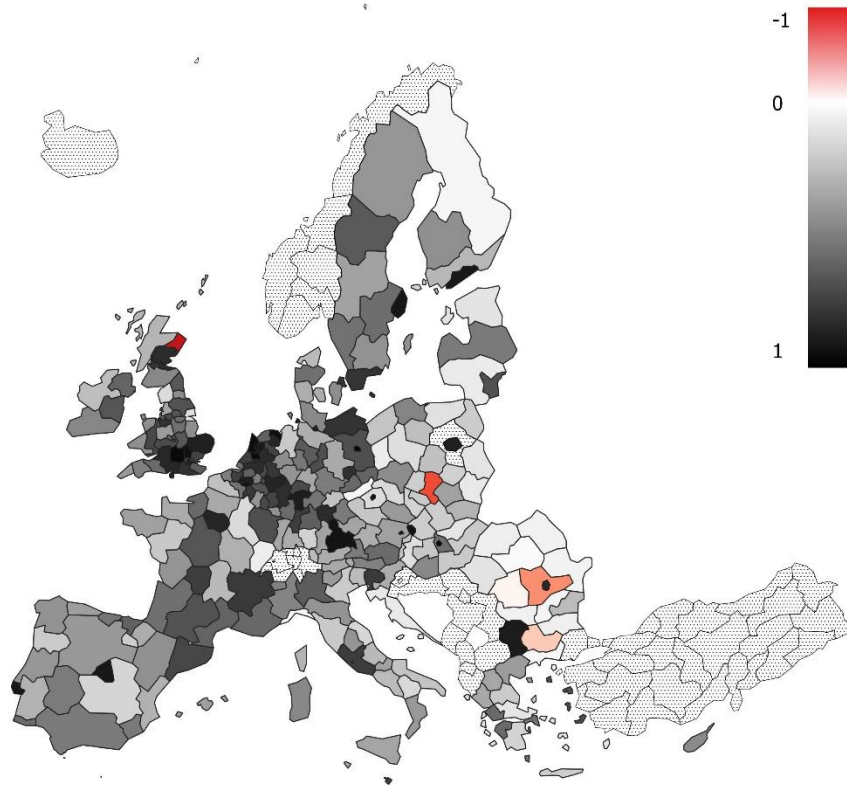
	Digital work applications
Security	Continuous cyberwar ICT-based security and defence
Health	Defeating communicable diseases Human organ replacement Precision medicine Learnings from COVID-19 Virtual patients Whole-genome synthesis
Work and Production	Nano-to-Macro integral manufacturing Reframing work Basic infrastructure Relocation of facilities Hyperconnectivity Service industry
Nutrition	Towards a more diverse food supply system A new sustainable diet Reliable supply of food
Knowledge Economy	Towards a new knowledge system

Source: Mesloh et al. (2021)

The quantitative development outlook for each NACE sector was then combined with an analysis of economic-structural specialisation in European regions. This analysis was based on the structural business statistics on NUTS2 level for 2018 (Eurostat, 2021b). By calculating the location quotient (LQ) of each NACE sector in each NUTS2 region, economic specialisations and their

quantitative strength could be identified.¹ Merging the LQ statistics with the trend statistics allowed us to calculate a value for each region that indicated whether the existing economic specialisation is favourable, neutral, or negative in light of upcoming trends. The findings are presented in Figure 3.

Figure 3. Degree of fit of regional specialisations and relation to megatrends



Source: Eurostat (2021b); Mesloh et al. (2021)

It becomes obvious that a future-oriented look at regional specialisation confirms several of the development pattern described above. On the one hand, there is a gap between Central and Eastern Europe where the majority of regions with a negative development outlook is located. Moreover, Southern European countries like Greece or Southern Italy are challenged considering upcoming developments. Thereby, the most obvious pattern is an emphasis of economic potential with a positive

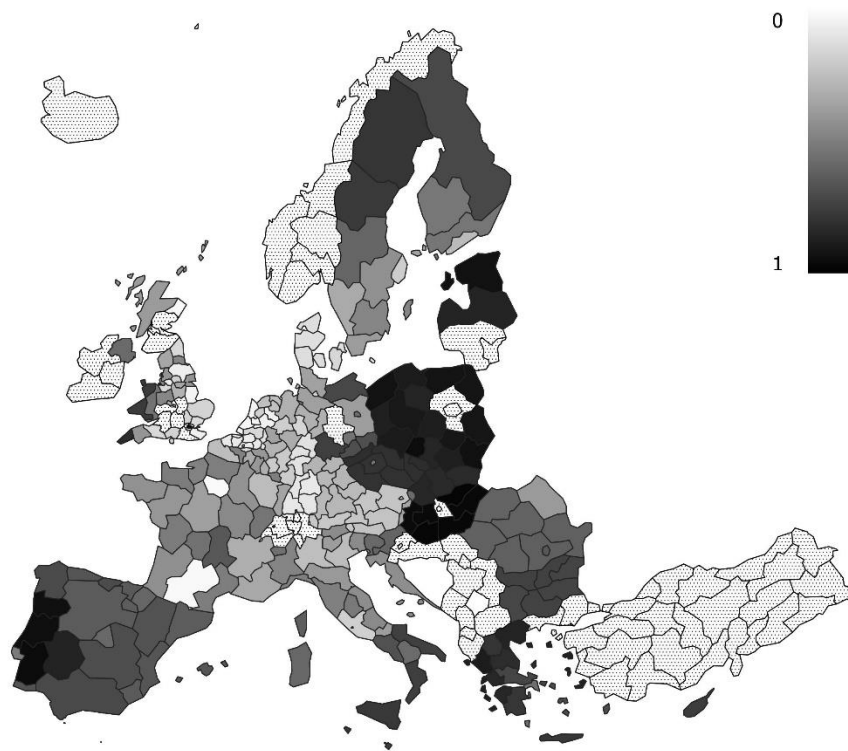
¹ The general formula is: $LQ_i = (e_i/e) / (E_i/E)$. Where, LQ_i = location quotient for sector in the regional economy; e_i = employment in sector i in the regional economy; e = total employment in the local region; E_i = employment in sector i in the national economy; E = total employment in the national region. An LQ value higher than 1 reflects a regional economic specialisation.

development outlook in the capital regions. While countries like France show a relatively diversified structure with a resilient-oriented capital region, the pattern is much more centralised in the UK, Poland, Spain, or Italy. This is in line with empirical findings that large cities and metropolitan areas tend to host complex economic activities which are related to high growth potential and super-linear scaling (Balland et al., 2018). To conclude, the current economic structure suggests, that the disparity between Europe regions is not likely to decrease significantly. Derived from this assumption, politics must deal with the question of regional economic specialisation in order to untie the Gordian knot of disparity and to bring the regions closer together.

4. Structural Funds and Cohesion Policy

One of the main instruments to address the issue of regional disparity in Europe is the Cohesion Policy and the European Structural and Investment Funds (ESIF). These include five funds overall: The European Regional Development Fund (ERDF), European Social Fund (ESF), Cohesion Fund (CF), European Agricultural Fund for Rural Development (EAFRD), and European Maritime and Fisheries Fund (EMFF). The thematic objectives are derived from the superordinate European strategy which defines the focus of funds (Deffaa, 2016). Together, the funds make up about 40 per cent of the EU budget and amounted to €637 billion in the period 2014-2020 when co-financing of member countries is considered. Although the absolute numbers are impressive, the relative weight of the funds compared to GDP is limited with an EU-wide average of 0.4 per cent. However, for certain countries, particularly in Eastern Europe, the ESIF adds up to a relatively high share of regional GDP and public investment (Deffaa, 2016). Figure 4 shows the modelled expenditure distribution of ERDF funds per inhabitant in 2018. It becomes clear that, in terms of financial transfer, the “new” member states as well as Southern Europe and peripheral regions benefit over-proportionally. The development gaps described above appear to be recognised by European Cohesion Policy.

Figure 4. Distribution of ERDF Funds, programming period 2014-2020, per inhabitant, 2018



Source: European Commission (2021b)

In this context, it remains open why the financial transfers to disadvantaged regions apparently have success in sustainably bridging the development gaps and empower regions to realise significant growth potential (see Figure 3). Several authors expressed their arguments that the effects of structural funds and their current financial transfer mechanism are relatively small and not working effectively (Antunes et al., 2020; Deffaa, 2016) while others remain sceptic but highlight the previous success stories of certain regions (Bourdin, 2019; Dauderstädt, 2021). However, the Cohesion Policy, as it is, creates a multi-speed Europe rather than an overall convergence process (Lafuente et al., 2020). Considering this context, it is economically discussed whether other measures should be taken to address European disparity, such as wage coordination policies and reformed tax systems (Andor, 2019; Aiginger, 2021). On the other hand, this article recommends a less intrusive policy with the realignment of cohesion policy.

On July 1st, 2021, the new Cohesion Policy legislative for the programming period 2021-27 entered into force. The new programming period is shaped by the consequences of the COVID-19 pandemic and the EU Green Deal as well as by learnings and findings from previous EU-programming periods. The future focus will see for a fair and territorially balanced recovery while

being oriented towards a digital and green transition (European Commission, 2021a; Wolf et al., 2021). Also, financial measures to support member states hit by the pandemic should ensure that recovery is not only inclusive and re-establishing the former status quo but also that recovery takes sustainability into account to help regions in the ongoing structural transformation process. Here, particularly the Recovery and Resilience Facility plays a major role for a green and digital transition towards higher regional resilience (Alcidi and Gros, 2020).

Consequently, European Cohesion policy adapts to the idea that endogenous potential of disadvantaged regions is best exploited when the requirements for growth are met. This can be achieved by a new industrial policy, investments in education and research, or the relocation of systemically relevant production from third countries to particularly those EU regions (Dauderstädt, 2021). This kind of investment in local specificities and regional characteristics is part of a new growth theory in regional science that aims towards more targeted policies and to make better use of ESIF resources (Bourdin, 2019; Andor, 2019). This is in line with the concept of Smart Specialisation which has been promoted as an official policy of the EU.

5. Relevance of S3 for European Cohesion – A Conclusion

The idea of Smart Specialisation goes back to the Barca report which should explain the R&D gap between Europe and the United States and led to the conclusion to put endogenous growth potential on the EU policy agenda (Barca, 2009; Harfst et al., 2020). Such an approach that incorporates place, space, and scales was manifested in the instrument of Smart Specialisation which was fostered by a high-expert group in 2009 and shortly after became official part of EC structural and innovation policy (Foray et al., 2009; 2011; Hassink, 2018; Mora et al., 2019). The basic idea was influenced by the discussion on regional innovation as a source of competitive advantage and was considered a possible strategy to address regional inequality (Asheim et al., 2011). Accordingly, Smart Specialisation, operationalised in regional Smart Specialisation Strategies (S3), aimed towards a new way of introducing technological innovation by identifying regional competitive advantages that could be further developed and used as a basis for diversification and attraction of further value creation. This strategy should lead to an increase of competitiveness not only for Europe but also for European regions (Foray, 2013; Asheim et al., 2016; Janik et al., 2020; Hidalgo et al., 2018). Becoming more productive is regarded as the key instrument for poor and less-developed regions to overcome that lock-in effect (Collier, 2020; Kruse and Wedemeier, 2018).

In terms of European Cohesion policy, Smart Specialisation has already been an ex-ante conditionality for regions to receive funding from ESIF for research, technology, and innovation (Deffaa, 2016). Moreover, Smart Specialisation and the support of research and innovation through

this measure, are regarded to leverage the consequences of the COVID-19 pandemic while boosting resilience, competitiveness, and convergence (European Commission, 2020). The recognition of sustainability, which is manifested in the EU Green Deal, has also facilitated the decision to complement Smart Specialisation Strategies (S3) by a sustainability aspect which would result in Smart Specialisation Strategies for Sustainability (S4) (Larosse et al., 2020; S3 Platform, 2021).

However, some authors exclaimed scepticism towards Smart Specialisation particularly as a policy instrument for the development of less-developed regions (McCann and Ortega-Argilés, 2015; Pessoa, 2016). This objection is based on the arguments that those regions regularly do not possess the technological diversification and regional capacities that are required to positively benefit from Smart Specialisation (Szávics and Benedek, 2020; D’Adda et al., 2018). It can be argued against this that the bottleneck is not the strategy in itself but the current state of it which is still under development to allow to exploit the endogenous potential (Hassink and Gong, 2019; McCann and Ortega-Argilés, 2016). Moreover, the aspect of interregional cooperation with the framework of Smart Specialisation appears to be beneficial to peripheral and less-developed regions (Santoalha, 2018; Woolford et al., 2021).

The authors point of view to conclude is that an interlinkage between innovation policy for green and digital transformation on the one hand and cohesion policy to overcome disparities on the other hand is a promising aspect to further develop and combine European policy efforts (Kruse and Wedemeier, 2020). Finally, Smart Specialisation is not a sufficient but a necessary instrument to leverage the regional endogenous potential in the context of industrial transformation (Kroll, 2017). Smart Specialisation can contribute to stabilise the resilience and future-proof orientation of European regions.

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